

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 18, 2010 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-5, 7, 9, 10, 12-18 and 22-25 are currently being examined.

Specification

The amendment dated February 4, 2010 correctly identifies the table to be amended. However, since amendments to the specification are entered when submitted, the amendments, dated June 25, 2009, are still in effect. The incorrect amendment to the specification at the top of page 3 which states, "Please amend the table at page 22, line 13 as follows" needs to be deleted.

Claim Rejections - 35 USC § 112

Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject

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matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 25 recites “free of a glazing pane”.

The cited phraseology clearly signifies a “negative” or “exclusionary” limitation for which the applicants have no support in the original disclosure. Negative limitations in a claim which do not appear in the specification as filed introduce new concepts and violate the description requirement of 35 USC 112, first paragraph, *Ex Parte Grasselli, Suresh, and Miller*, 231 USPQ 393, 394 (Bd. Pat. App. and Inter. 1983); 783 F. 2d 453.

The insertion of the above phraseology as described above positively excludes glazing panes in the fire protection means, however, there is no support in the present specification for such exclusions. While the present specification is silent with respect to the use of fire protection means with glazing panes, is noted that as stated in MPEP 2173.05(i), the “mere absence of a positive recitation is not the basis for an exclusion.” While the instant specification teaches that the film can be integrated into glazing, this does not preclude it from also comprising a glazing pane prior to incorporation in the glazing unit.

Claims 1, 3-5, 7, 9, 10, 12-18 and 22-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 1, it is unclear what is meant by the phrase "hybrid film system". While the instant specification (Page 5, lines 4-6) teaches that the hybrid film system has at least one film that is coated with an intumescent material, this does not define what is meant by "hybrid film system". Further, the specification (Paragraph bridging pages 8 and 9) has a discussion of hybrid that seems to indicate that one layer would have both organic and inorganic constituents. Thus the term, "hybrid film system", could mean that the layers are formed from different types of materials or that an individual layer must have 2 different materials in the layer. The Examiner has presented a rejection for each interpretation. All other claims depend from claim 1 and thus, are also rendered indefinite.

Regarding claim 25, it is unclear what is encompassed by a glazing pane. Since glazing materials can be made from plastic materials, these would be included in the definition of glazing panes, but would be present in the fire protection means taught in the instant specification. The Examiner is interpreting this limitation to mean that the means is free of glass layers.

Claim Rejections - 35 USC § 102

Claims 1, 3-5, 7, 18 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Bolton et al. (US 5,496,640) which incorporates by reference GB 1541371.

Regarding claims 1, 18 and 25, Bolton (Column 1, lines 5-15) teaches a fire resistant transparent laminate for protective doors and/or windows. The laminate

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(Column 4, lines 7-15 and Figure 4) comprises an inner fire protection means comprising optically transparent fluorocarbon polymer sheets 43 and 43' and ionomer sheet 45, which is coated with intumescent gel layers 44 and 44'. Bolton (Column 1, lines 60-63) teaches that the fire resistant gel can be that of GB 1541371, which is incorporated by reference in the Bolton patent. The gel of GB 1541371 (Page 4) can comprise sodium silicate (intumescent material) and acrylamide and thus, is an inorganic/organic hybrid layer. This portion of the laminate is free of glass panes. This laminate interlayer is formed and then adhered to the glass outer sheets (Column 4, line 40 through Column 5, line 44).

Regarding claim 3, an adhesive can be interposed between the glass and the fluorocarbon polymer (Column 5, lines 49-54).

Regarding claim 4, the intumescent material is a silicate and thus, is siliceous.

Regarding claim 5, Bolton (Column 2, lines 40-46) teaches that the intumescent gel layer can have siloxane barrier coating applied to the surface of the layer. Thus, this layer would have siloxane at the surface, but not further within the layer and the composition of the layer would vary over the thickness of the layer.

Regarding claim 7, the overall laminate is transparent and thus, the layers comprising the laminate are transparent. The laminate includes transparent fluorocarbon polymer sheets, an ionomer sheet and intumescent gel layers. All three of these layers would have different chemical compositions. The intumescent layer is fire-retardant.

Claims 1, 3-5, 7, 9 and 18 rejected under 35 U.S.C. 102(b) as being anticipated by De Boel et al. (US 4,190,698).

Regarding claim 1, De Boel (Column 1, lines 13-23) teaches a light-transmitting (transparent) fire screening panel comprising a sheet of glass (film) and a layer of intumescent material. The intumescent layer (Example 1, Column 4) comprises sodium silicate (inorganic material) and glycerine (organic material) and thus, is a hybrid layer. A second sheet of glass can be applied to the film (Column 4, lines 29-34) and thus, the film is integrated into a construction element. The glass layers and the intumescent layer are composed of different materials and by an alternative definition of hybrid make the structure a hybrid film system.

Regarding claim 3, De Boel (Example II, Column 5) teaches that film can then be adhered to the second glass sheet via a polyvinyl butyral layer.

Regarding claim 4, the intumescent material (Column 1, lines 13-23) is a silicate and thus, is siliceous.

Regarding claim 5, the layers 1 and 7 of Figure 2, can be considered a layer of the composition. The material of the intumescent part of the layer (1) is different than the adhesive portion of the layer (7).

Regarding claim 7, the intumescent layer is fire-retardant.

Regarding claim 9, the intumescent layer of Example I, Column 4 has a weight ratio of SiO_2 to Na_2O of 3.3. This is a mole ratio of 3.4.

Regarding claim 18, the film is a transparent sheet with glass layers and can be considered to be glazing.

Claims 1, 7, 10, 12 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by von Bonin (US 5,182,049).

Regarding claims 1 and 18, von Bonin (Column 4, lines 32-44) teaches clear gels that are suitable for use as an interlayer in fire prevention glazing. The gel is formed from an intumescent media (Column 1, lines 42-52). The gel can comprise organic amines and inorganic silicates (Column 2, lines 37-68) and thus, is a hybrid layer. Alternately, the glazing layers that are different than the interlayer make the structure a hybrid film system.

Regarding claim 7, von Bonin (Column 4, lines 45-48) teaches that the material is fire-extinguishing.

Regarding claims 10 and 12, von Bonin (Column 2, lines 37-46) teaches that the intumescent media can also comprise swellable mica. Mica is a layered silicate that can comprise magnesium.

Claims 1, 3, 4, 7, 9, 13-16, 18 and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Zernial et al. (EP 1044801).

Regarding claims 1, 7 and 18, Zernial (Paragraph 1) teaches a fire protection glass comprising at least three glass panes and at least two fire retardant layers of aqueous alkali silicate (intumescent material). The intumescent layer (Example 1, Paragraph 27) comprises sodium silicate (inorganic material) and glycerine (organic

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material) and thus, is a hybrid layer. Alternately, the glass layers that are different than the fire retardant layers make the structure a hybrid film system.

Regarding claim 3, the intumescent layer adheres the two glass layers together (Example 1).

Regarding claim 4, the intumescent material is a silicate and thus, is siliceous.

Regarding claim 9, Zernial (Paragraph 13) teaches that the intumescent layer has a weight ratio of SiO_2 to Na_2O from 2.7 to 3.5. This is a mole ratio of 2.8 to 3.6.

Regarding claims 13 and 22-24, Zernial (Paragraph 13) teaches that the intumescent layer preferably has a residual moisture level of 25 wt% and a glycerine content of 5 to 15 weight percent.

Regarding claims 14-16, the intumescent layer comprises 0 wt% MTEOS, 0 wt% TEOS and 0 wt% GTPS.

Claim Rejections - 35 USC § 103

Claims 9, 13-17, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolton et al. (US 5,496,640) in view of Toussaint et al. (US 4,873,146).

As stated above, Bolton teaches a fire protection means that meets the limitations of claim 1. Bolton (Column 7, lines 14-27) teaches that the intumescent material should be optically transparent and substantially non-degradable upon standing for long periods of time.

While, as stated above, Bolton teaches materials that can be used as the intumescent gel, Bolton does not limit the intumescent material to those specific gels.

Toussaint (Column 1, line 55 through Column 2, line 4) teaches an intumescent material that is transparent and has improved aging properties, since the appearance of haze in the intumescent material is delayed or inhibited. While the material is not stated as being a gel, the structure of the intumescent material (Column 3, line 33 through Column 4, line 2) is that of an intumescent gel.

It would be obvious to one of ordinary skill in the art to use the intumescent material of Toussaint, as the intumescent gel of Bolton, in order to ensure the intumescent layer is both transparent and has improved aging properties.

Regarding claim 9, Toussaint (Column 3, lines 33-49) teaches that the intumescent material has a weight ratio of SiO_2 to Na_2O from 2.5 to 5. This is a mole ratio of 2.6 to 5.2.

Regarding claim 13, 22 and 23, Toussaint (Column 3, lines 50-68) teaches that the intumescent material has a residual water content of 25 to 35 % by weight and can comprise up to 10 % by weight of layer of glycerine.

Regarding claims 14-16, the intumescent material comprises 0 wt% methyltriethoxysilane, 0 wt% tetraethylorthosilicate and 0 wt% glycidoxypropyltrimethoxysilane.

Regarding claim 17, Toussaint (Column 2, line 67 through Column 3, line 32) teaches that the layer of intumescent material can comprise up to 1% by weight of

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tetramethylammonium hydroxide. Tetramethylammonium hydroxide is a cationic surfactant.

Response to Arguments

Applicant's arguments filed February 4, 2010 have been fully considered but they are not persuasive.

Applicant argues that the phrase "hybrid film system" is definite and means that there must be two layers. However, the Examiner maintains that it is unclear what hybrid means. While the instant specification (Page 5, lines 4-6) teaches that the hybrid film system has at least one film that is coated with an intumescent material, this does not define what is meant by "hybrid film system". Further, the specification (Paragraph bridging pages 8 and 9) has a discussion of hybrid that seems to indicate that one layer would have both organic and inorganic constituents. Thus the term, "hybrid film system", could mean that the layers are formed from different types of materials or that an individual layer must have 2 different materials in the layer. The Examiner has presented a rejection for each interpretation.

Applicant argues that one skilled in the art of fireproof glazings is well aware of what the term film means without a definition. However, Applicant has provided no evidence that this is the case. There is no definition in the instant specification that defines the term "film", nor is there claim language specifying the material or thickness of the film. While Applicants points to several portions of the specification to support their interpretation of "film", none of the portions disclose a definition of the word film.

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While the instant specification teaches that the film can be integrated into glazing, this does not preclude it from also comprising a glass layer prior to incorporation in the glazing. The Examiner maintains that barring a definition, the glass layers can be considered to be films under the broad definition of the term as a thin sheet of material. This is not inconsistent with the specification, since the specification does not define the term.

Applicant argues that the thickness of the film is limited, since the layer is required to be transparent. However, there are thick pieces of glass or plastic that are transparent. This does not provide a quantifiable definition of film thickness.

Applicant argues that the glass layers of De Boel et al. (US 4,190,698), von Bonin (US 5,182,049) and Zernial et al. (EP 1044801) are not films. However, as stated above, the glass layers can be considered to be films under the broad definition of the term as a thin sheet of material.

The declaration filed on February 4, 2010 under 37 CFR 1.131 is sufficient to overcome the Bond et al. (WO 03/024682) reference.

Applicant's arguments regarding the 35 U.S.C. 112, first paragraph rejections from the November 4, 2009 Office Action are persuasive. Thus, these rejections are withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is

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(571)272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. R./
Elizabeth Robinson
Examiner, Art Unit 1787

November 4, 2010

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1787